REMARKS

This is a full and timely response to the Office Action mailed November 27, 2007, submitted concurrently with a three month extension of time to extend the due date for response to May 27, 2008.

By this Amendment, claims 1 and 2 have been amended to more particularly define the present invention and to put the claims in better form under U.S. practice. Further, new claims 5-15 have been added to further protect specific embodiments of the present invention. Thus, claims 1-15 are currently pending in this application with claims 3 and 4 being withdrawn. Support for the claim amendments and new claims can be readily found variously throughout the specification and the original claims.

In view of these amendments, Applicant believes that all pending claims are in condition for allowance. Reexamination and reconsideration in light of the above amendments and the following remarks is respectfully requested.

Objection to the Drawings

The Examiner has objected to the drawings for (1) lacking clarity in Figures 2(b), 2(c), 4, 5, 6, 7, 8, 10 and 13 and (2) failing to include the figure heading "Prior Art" for Figures 26-29. Applicant has submitted corrected formal drawings which address all of the Examiner's concerns. Thus, withdrawal of this objection is respectfully requested.

Objection to the Abstract

The Examiner has objected to the abstract for using the term "*means*". Applicant has amended the abstract to remove the objectionable term. Thus, withdrawal of this objection is respectfully requested.

Objection to the Specification

The specification is objected to for the informalities noted on the bottom of page 4 to the top half of page 5 of the action.

Although Applicant disagrees with the Examiner's concerns, in the interest of expediting the prosecution of the present application, Applicant has amended the specification to address each of the concerns raised by the Examiner. More specifically, Applicant has amended the specification in accordance with the Examiner's suggestions.

Thus, in view of these amendments to the specification, withdrawal of this objection is respectfully requested.

Rejections under 35 U.S.C. §102 and §103

Claim 2 is rejected under 35 U.S.C. §102(b) as allegedly being anticipated by any one of U.S. Patent Nos. 6,460,258, 6,470,782 and 6,478,206. Further, claim 1 is rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over any one of U.S. Patent Nos. 6,460,258, 6,470,782 and 6,478,206 (hereinafter "Shimotoyodome patents" or USP '258, USP '782 and USP '206, respectively). Applicant respectfully traverses these rejections.

To constitute anticipation of the claimed invention under U.S. practice, the prior art reference must literally or inherently teach each and every limitation of the claims. Further, to establish a *prima facie* case of obviousness, the cited reference(s) must teach or suggest the invention as a whole, including all the limitations of the claims. Here, in this case, none of the cited references teach or suggest all of the limitations of the claims with particular emphasis on the limitations "*wherein the formation of the intersection between the scribe line in the second direction and the scribe line of the first direction occurs without the scribe means being pressed against the existing scribe line in the brittle material substrate*" and "*a travel motion control means for controlling the travel motion of said scribe means, wherein said travel motion control means prevents said scribe means from traveling across the point of intersection between said scribe lines of the first and second directions*".

The present application is directed to a scribe method and scribe apparatus which forms intersecting scribe lines without the occurrence of chipping, chafing and splintering defects at the scribe line intersections. The present invention utilizes the phenomenon of the ***advance of the vertical crack*** to form a plurality of scribe lines having a first direction intersecting with a plurality of scribe lines having a second direction. The advance of the vertical crack effect occurs when a

deep vertical crack advances in the direction opposite to the scribe direction immediately after the scribing start (see page 4, lines 9-14, of the specification). This feature of the present invention is specifically claimed in amended claim 1 in the limitation "*wherein the formation of the intersection between the scribe line in the second direction and the scribe line of the first direction occurs without the scribe means being pressed against the existing scribe line in the brittle material substrate*" and in amended claim 2 in the limitation "*a travel motion control means for controlling the travel motion of said scribe means, wherein said travel motion control means prevents said scribe means from traveling across the point of intersection between said scribe lines of the first and second directions*".

Based on Applicant's review of the cited references, all of the cited references disclose using a scribe means to form a scribe line. USP '258 discloses a scribe body (A) to form a scribe line in the surface of the work piece. Further, USP '782 discloses the formation of the scribe line 105 on the sheet glass 100 by cutter 30. Finally, USP '206 discloses the use of cutter 13 to periodically press (abuts and beats) the work surface 50a while moving along the work surface 50a, to thereby form a scribe line thereon. However, none of the cited references teach or suggest the limitation in claim 1 noted above relating to the use of the phenomenon of the ***advance of the vertical crack*** to form a plurality of intersecting scribe lines with the formation of the intersection between the scribe lines occurring *without the scribe means being pressed against the existing scribe line in the brittle material substrate*. Also, none of the cited references teach or suggest a travel motion control means specifically programmed to control the scribe means to form the intersection between the scribe lines without the scribe means being pressed against the existing scribe line in the brittle material substrate.

In the Office Action, the Examiner appears to argue that the Shimotoyodome patents teach the travel motion control means of claim 2 since the moving mechanism of the Shimotoyodome patents allow for vertical movement of the scribe means. Further, the Examiner also argues in the Office Action that the method steps of claim 1 describe any scribe line configuration wherein multiple lines, which do not intersect one another, are provided on the brittle material. Applicant has amended the claims to better describe the use of the ***advance of the vertical crack*** phenomenon to form a plurality of intersecting scribe lines in the present invention.

More specifically, Applicant believes that amended claim 2 is distinguishable from that which is disclosed in the Shimotoyodome patents since the moving mechanism of Shimotoyodome is not specifically programmed to determine when and at which point the vertical movement of the scribe means is initiated. Further, the present claims have been amended to require (1) the intersection of the vertical cracks between at least one scribe line in the second direction with at least one scribe line of the first direction, and (2) that such intersection is formed without the scribe means being pressed against the existing scribe line in the brittle material substrate. Applicant believes that such limitations are not equivalent to any scribe line configuration of multiple lines which do not intersect with one another as argued by the Examiner.

Applicant also wishes to emphasize that it is such features of the present invention which allows for the formation of intersecting scribe lines without the occurrence of chipping, chafing and splintering defects at the scribe line intersections (see the Examples in the specification). In other words, by pressing the scribe means against the existing scribe line in the brittle material substrate, or at a scribe start position or a scribe stopped position too close to the existing scribe line, the problems of chipping, chafing and splintering defects at the scribe line intersections will occur (see Figures 27-29 of the drawings). Also, if the scribe start position or the scribe stopped position is too far from the existing scribe line, the intersecting scribe line will not advance to the existing scribe line. Such superior features of the present invention cannot be expected based on the teachings of the Shimotoyodome patents. As the Examiner already knows, presence of a property not possessed by the prior art is evidence of nonobviousness. *In re Papesch* , 315 F.2d 381, 137 USPQ 43 (CCPA 1963).

Thus, for these reasons, withdrawal of the present rejections is respectfully requested.

CONCLUSION

For the foregoing reasons, all the claims now pending in the present application are believed to be clearly patentable over the outstanding rejections. Accordingly, favorable reconsideration of the claims in light of the above remarks is courteously solicited. If the Examiner has any comments or suggestions that could place this application in even better form, the Examiner is requested to telephone the undersigned attorney at the below-listed number.

Dated: May 27, 2008

Respectfully submitted,

By: 

Lee Cheng
Registration No.: 40,949
CHENG LAW GROUP PLLC
1100 17th Street, N.W.
Suite 503
Washington, DC 20036
(202) 530-1280
Attorneys for Applicant

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FIG.2

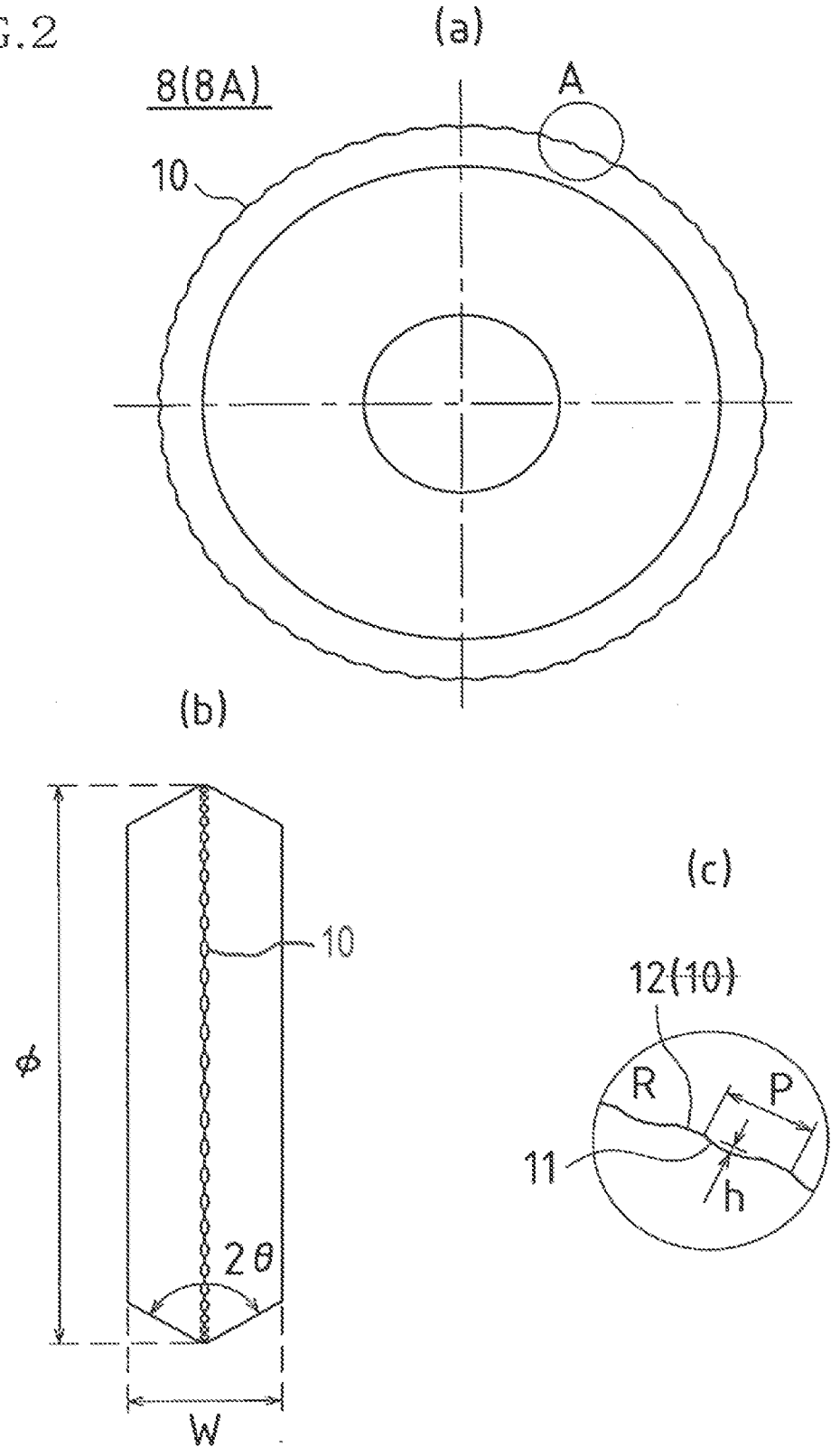


FIG.3

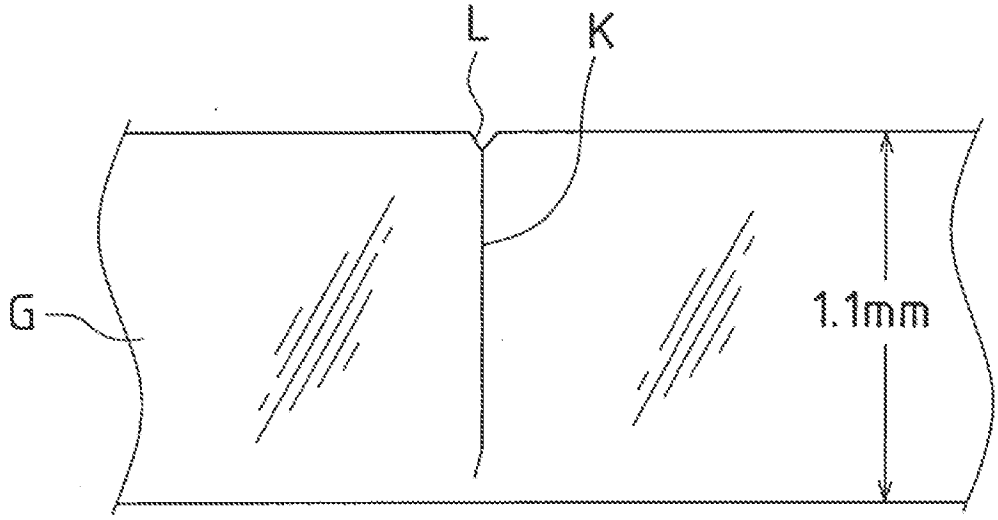


FIG.4

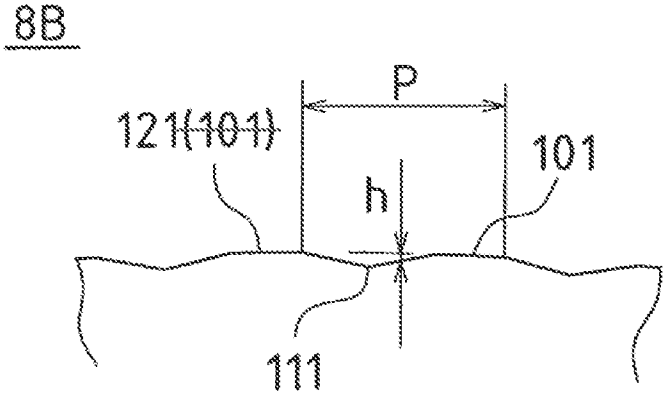


FIG.5

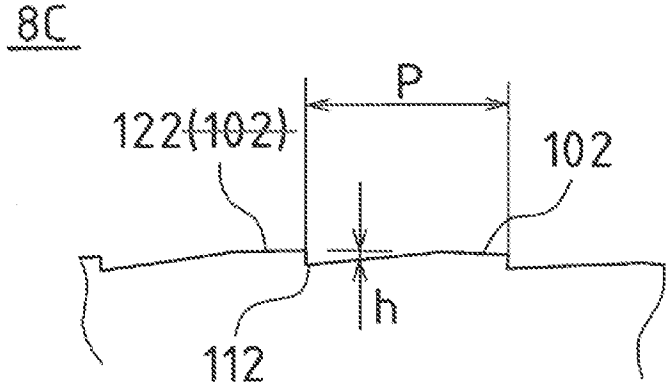


FIG.6

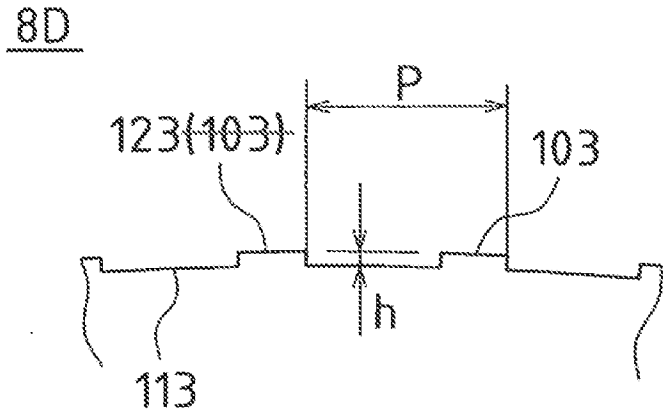


FIG. 7

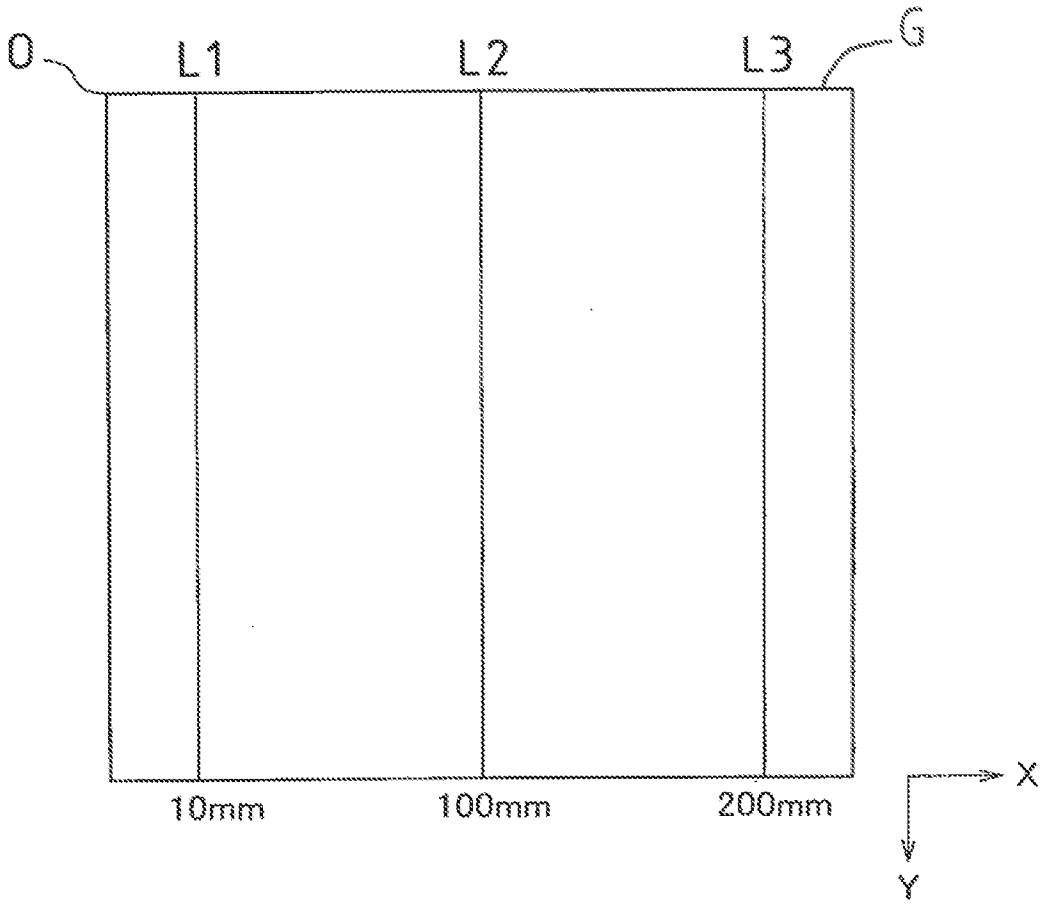
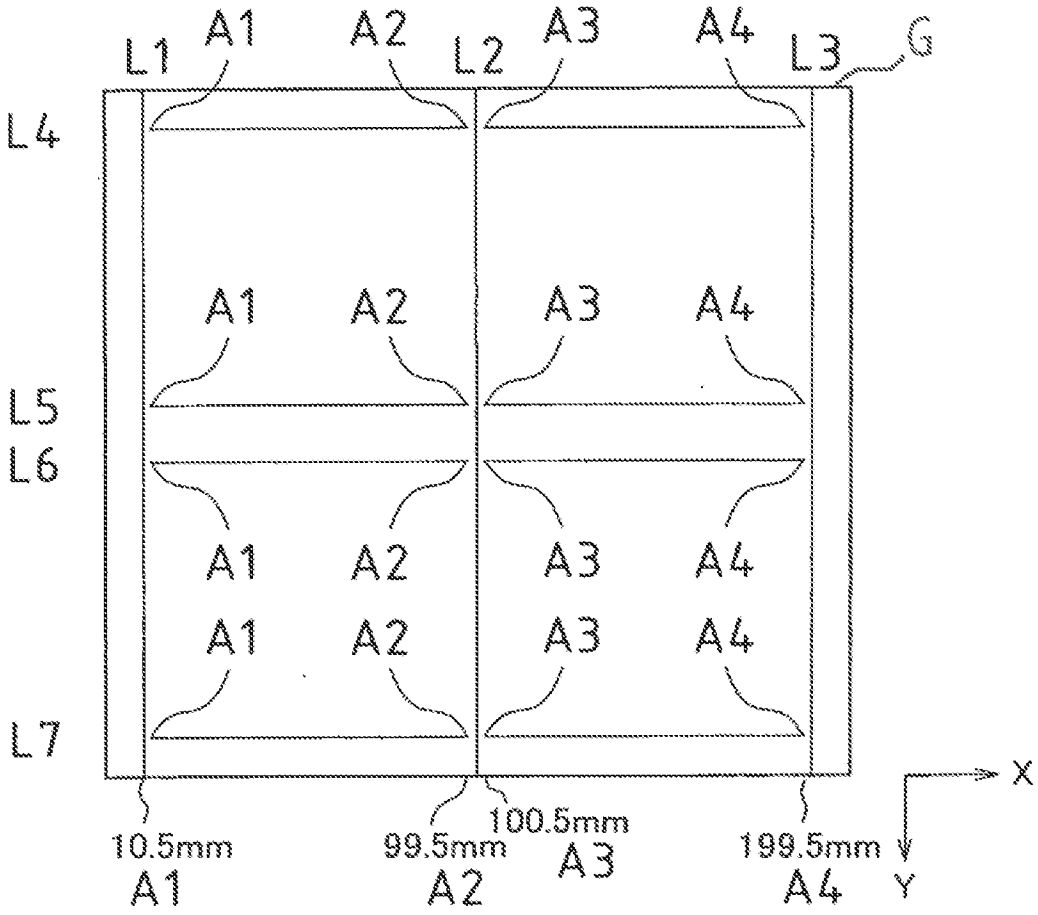


FIG.8


L1
A1
A2
L2
A3
A4
L3
G
L4
A1
A2
A3
A4
L5
L6
A1
A2
A3
A4
A1
A2
A3
A4
L7
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10.5mm
A1
99.5mm
A2
100.5mm
A3
199.5mm
A4
Y

FIG.10

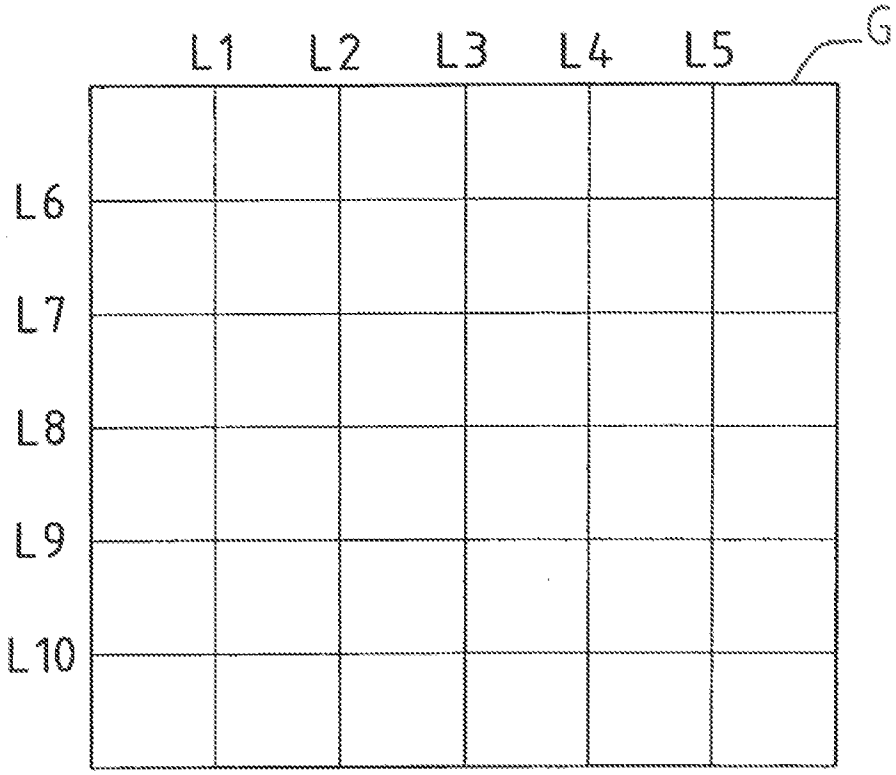

FIG.13

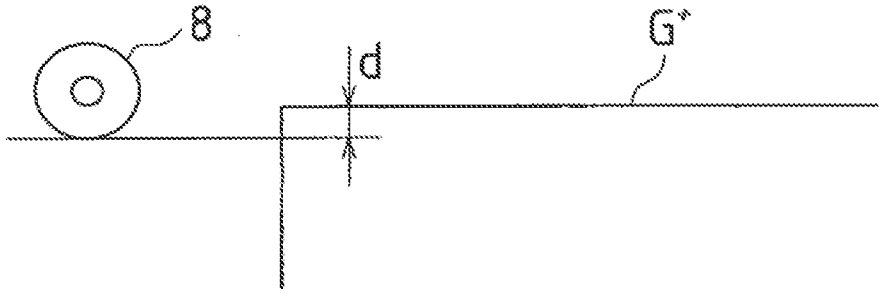
8
d
G

FIG.14

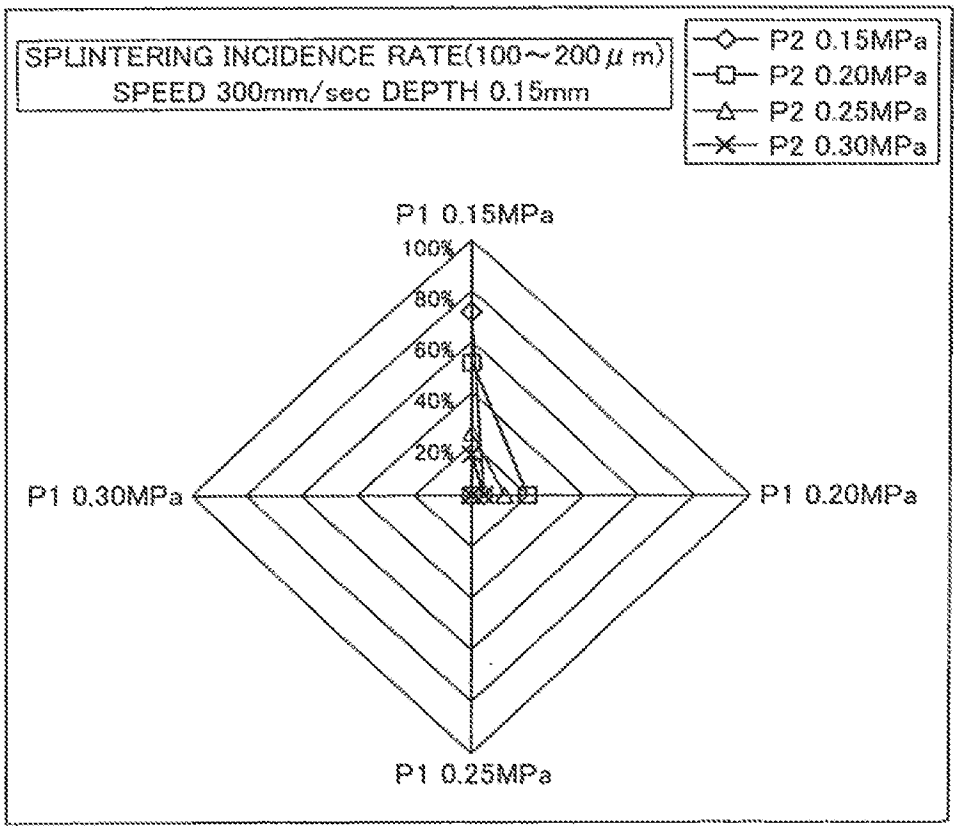
SPLINTERING INCIDENCE RATE(100~200μm)
SPEED 300mm/sec DEPTH 0.15mm
P2 0.15MPa
P2 0.20MPa
P2 0.25MPa
P2 0.30MPa
P1 0.15MPa
100%
80%
60%
40%
20%
P1 0.30MPa
P1 0.20MPa
P1 0.25MPa

FIG.26 Prior Art

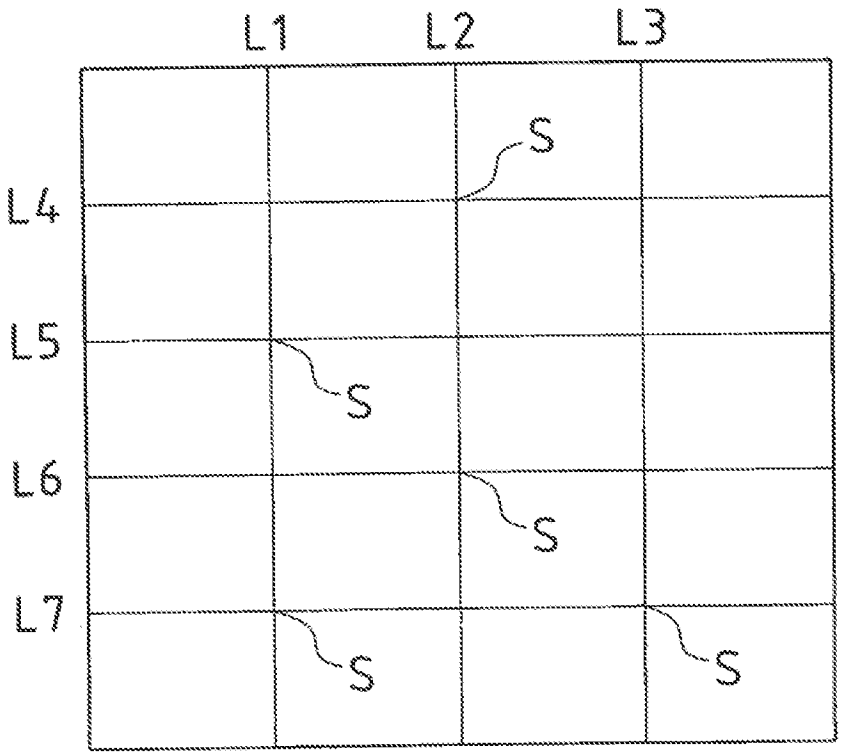

FIG.27 Prior Art

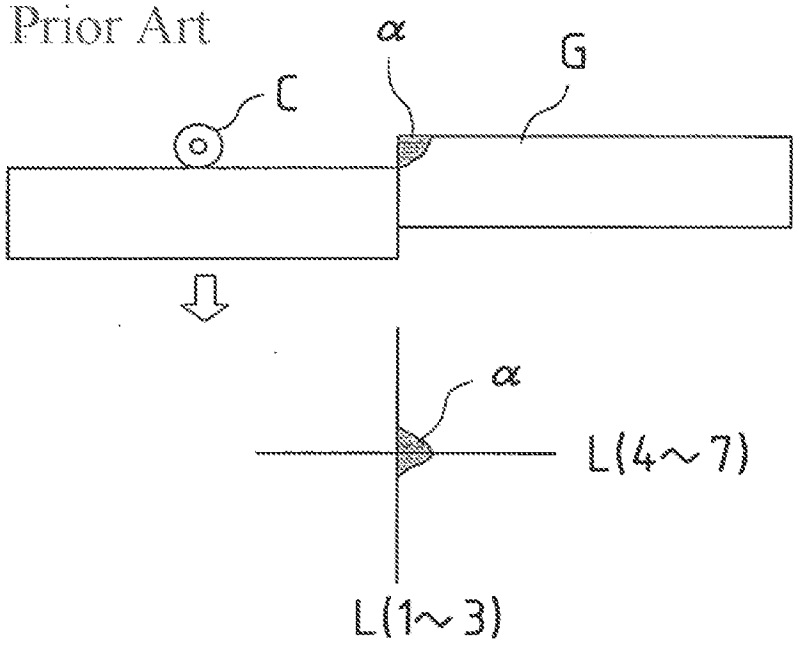

FIG.28 Prior Art

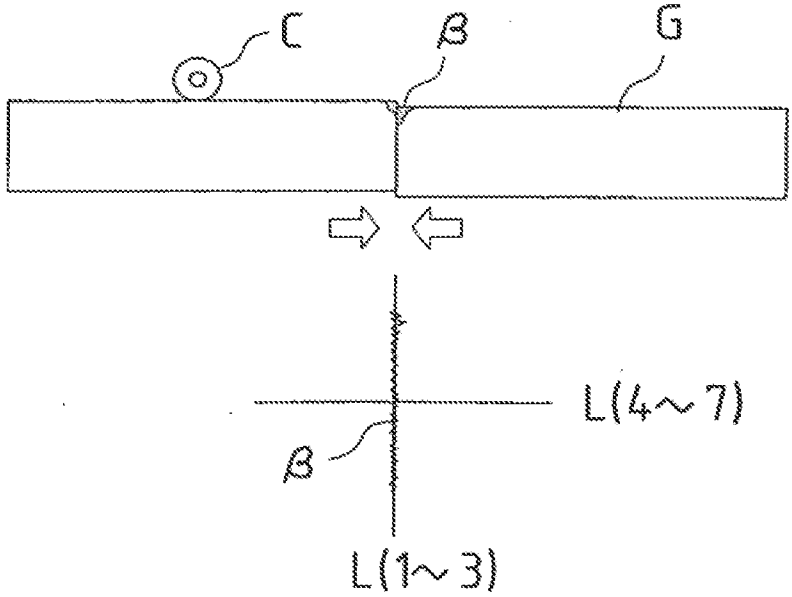

FIG. 29 Prior Art